5

10

15

20

WHAT IS CLAIMED IS:

- An electron source manufacturing apparatus comprising:
- (a) a support which supports a substrate having a conductor formed thereon and has means for adjusting a temperature of the substrate;
 - (b) a vessel which has a gas inlet port and a gas exhaust port and covers part of the substrate;
- (c) means for introducing and exhausting gas into and from said vessel: and
 - (d) means for applying a voltage to the conductor, wherein part of said support has a groove.
- An electron source manufacturing apparatus comprising:
 - (a) a support which supports a substrate having a plurality of conductors each comprising a pair of electrodes and a conductive film formed between the electrodes:
 - (b) a vessel which covers part of the substrate;
 - (c) means for introducing and exhausting gas into and from a space defined by said vessel and the substrate; and
- (d) means for applying a voltage to each 25 conductor.

wherein said support has a groove in a surface in contact with the substrate.

- 3. An apparatus according to claim 1 or 2, wherein the groove is formed along a periphery of a region where the conductor is laid out.
- 4. An apparatus according to claim 1 or 2, wherein the groove is substantially rectangularly formed along a periphery of a region where the conductor is laid out.
- 5. An apparatus according to claim 3, wherein one end of the groove is located by not less than 1 mm inward from the periphery.
- 6. An apparatus according to claim 3, wherein the other end of the groove is located by not less than 10 mm outward from the periphery.